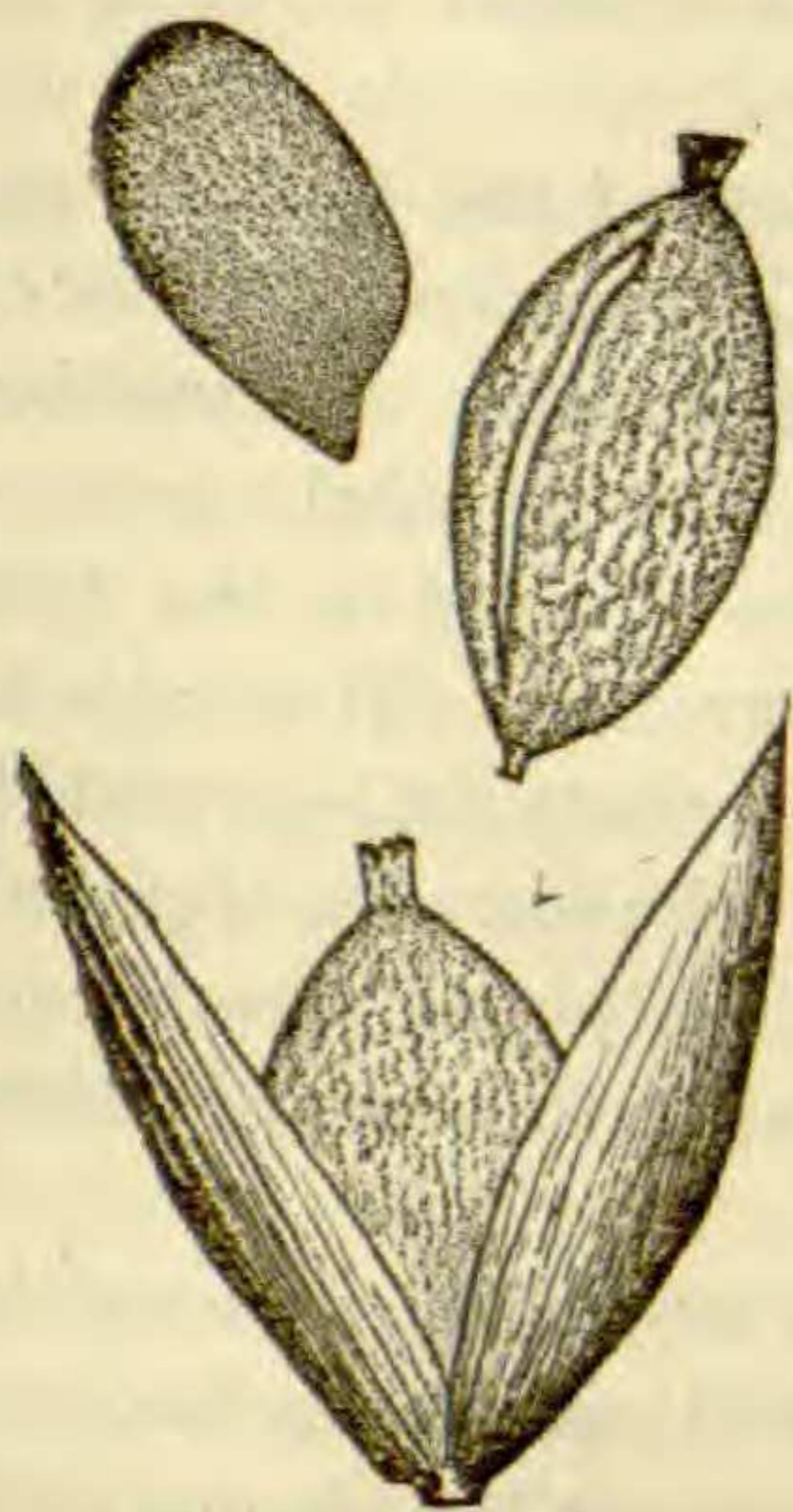


Expulsion of the seeds of *Sporobolus cryptandrus*.* -The caryopsis of most Gramineæ contains a seed which firmly adheres to the pericarp. Sporobolus and some others have long been known as exceptions to this rule. The ovary of *Sporobolus* is very thin and tender. Free seeds may often be seen still adhering to various portions of the glumes and branches of the panicle. One of my special students, at my suggestion, has made a few experiments to determine the mode in which the seed escapes. Inside the ovary and about the seed there is a gummy secretion. When about ready to escape or at a certain stage of maturity, if water be applied to the panicle, in a short time the seeds come forth. A part of a panicle was wet and in 30 minutes 27 seeds escaped; in 37 minutes 40 seeds had escaped. In another case the seeds began to escape in ten minutes after the water was applied. After drying six days in a room seeds started out twenty minutes after wetting. In other cases seeds were seen to escape in six minutes, and in one case in four and one-half minutes. If the ovary is carefully removed from the floral glume and palea, and water is applied, the seed usually escapes a little quicker than when left in the floret.



On applying water the ovary may be seen to slowly enlarge till it bursts and the seed pops out in a hurry. If a little water is applied, it moves more slowly, and if the glumes are still near the ovary the seed moves upward and usually adheres to some part of the panicle. A slight sprinkling or a heavy dew would bring the seeds out, but a heavy rain would wash them down at a time when the condition would be favorable for germination. Several other species, as I judge from herbarium specimens, expell and hold their seeds in a similar manner. The action of the water on the ovary seems to be purely mechanical and is explained in well known works on physics. The water enters the ovary faster than the gum can escape. The ovary is flattened and splits on the side next the palea.—W. J. BEAL.

The Biology of timber trees with special reference to the requirements of forestry †—It is most necessary for forestry purposes to thoroughly understand the biology of the timber tress to be propagated, as injudicious methods of propagation, selection of unsuitable species and improper after-treatment may occasion heavy financial loss, the results being visible only after many years of investment. The selection of the material for forestry purposes out of the 420 arborescent species is made difficult by the absence of knowledge as to the true value not only of the timber, but the growing capacities of our trees.

A classification may be made into dominant species, which are capable of

*Read before the Botanical Club of the A. A. A. S., Buffalo meeting, 1886.

†Portion of an abstract, by the author, of a paper read before the A. A. A. S., Buffalo meeting, 1886.